

## 2.6 Building 828

Building 828 is an outside concrete pit containing two-1,000 liter tanks filled with unused raschig rings. The pit and tanks have potentially been contaminated from groundwater seepage into the pits. The BIO also notes the potential for internal contamination with enriched uranium (KH 1995).

## 2.7 Contaminant Summary

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Based on a review of the historical information associated with the 886 Cluster the following contaminants have been identified. Table 2-1 summarizes the process information.

### 2.7.1 Asbestos

A complete asbestos inspection of the building will be conducted in accordance with Colorado Department of Health and Environment (CDPHE) and Asbestos Hazard Emergency Act (AHERA) regulations by a certified State Inspector. Concrete used in the construction of Building 886 Rooms 101, 102, and 103 is known to contain asbestos.

### 2.7.2 Polychlorinated biphenyls

Sources of suspected polychlorinated biphenyls (PCBs) that could be encountered during decommissioning activities include fluorescent light ballasts and electrical equipment in the 886 buildings. The characterization will include an inventory of suspected PCB containing materials to estimate the type and quantity of these wastes.

### 2.7.3 Lead and Metals

It is assumed that the majority of painted surfaces associated with safety markings and fire protection systems contain lead. This assessment is based on previous sampling conducted by the Industrial Hygiene group and is documented in the Health and Safety Lead Abatement Plan files. As a result, these surfaces will not be sampled as part of the characterization.

### 2.7.4 Radionuclides

As discussed in Section 2, radioactive contamination is known to be in the 886 cluster based on past survey results; however, isotopic analyses have not been performed to characterize the nature of the radioactive contamination. Rooms 102 and 108 are not plutonium contaminated. Process knowledge indicates that with the exception of Room 103, where a plutonium container ruptured and release plutonium in both rooms and associated exhaust system, the radioactive contamination is assumed to be uranium. Plutonium is suspected to be present in Rooms 101 and 103.

### 3.2 Identification of Decisions

Characterization data acquired through implementation of the RCLP will support the primary technical decisions as follows:

- What materials (e.g., paint, concrete, pipe insulation, etc), media (e.g., water, oil, solid, sludge, etc), or equipment within the facility are contaminated or, conversely, not contaminated?
- What are the generic classification categories by which the materials, equipment, and/or media will be managed, relative to an eventual assignment as contaminated (hazardous, radiological, or mixed) or not contaminated (nonhazardous)? In other words, what are the categories of waste streams that will result from the D&D of the 886 Cluster?
- What are the ultimate dispositions (i.e., waste classifications) of the waste streams, including quantities (e.g., a completed summary table)?

### 3.3 Identification of Inputs to the Decisions

Inputs to the decisions are COC-specific. Tolerable error of the parameters, relative to aspects such as detection limits, accuracy, and precision are also considered. Nonradionuclide data will initially be based on visual identification of materials, equipment, equipment components, or media and sampled according to the instructions presented in Section 4.0. Although professional judgment is instrumental to the execution of the RCLP, sampling will err to the conservative (i.e., collecting more samples) if there is any doubt regarding homogeneity of the materials sampled.

#### 3.3.1 Asbestos

All surfacing materials and thermal insulation materials must be sampled for asbestos per 40 Code of Federal Regulations (CFR) 763.86. A minimum of three samples are required per homogeneous area greater than 6 linear feet (ft) and <1,000 ft<sup>2</sup> in dimension; 1 sample is required for areas <6 linear ft in dimension. Five samples are required per homogeneous areas between 1,000 ft<sup>2</sup> and 5,000 ft<sup>2</sup>. Where homogeneous areas of >5000 ft<sup>2</sup> are encountered, 7 samples are required. Samples are randomly selected from the centers of a 3x3 ft square grid proportional to the size of the area. Grid spacing is only required for friable surfacing materials which may include drywall joint compound if suspected by the inspector

The presence of asbestos (i.e., >1% by volume) will be determined at an offsite, certified laboratory by Method EPA 600/R-93/116. Point counting is required when PLM results on friable asbestos range between 1% or less and more than 0%. All offsite laboratory contractual and quality specifications are under the auspices of the RFETS Analytical Projects Office (APO).

The generic categories of materials to be sampled are listed below:

- thermal systems (e.g., pipe insulation)
- surfacing materials (e.g., fireproofing, ceiling texture)
- miscellaneous (floor tiles, ceiling panels, concrete foundations and walls)

Based on the sampling results and the bulk materials represented by the samples, the quantities of friable and nonfriable ACM will be estimated for subsequent abatement and waste management purposes.

### 3.3.2 Polychlorinated Biphenyls (PCBs)

*7/17/97* A minimum of one sample will be acquired per homogeneous material/media type per building. To assess material/media against the regulatory threshold of 50 parts per million (ppm) PCB-contaminated media (40 CFR 761.125) a laboratory method will be used to quantify PCB concentrations. A practical quantitation limit (i.e., reporting limit) of <5 ppm (1 order of magnitude less than the regulatory action level) will be required.

The following media shall be sampled for PCBs if encountered and if a sample can be obtained without dismantling the suspect equipment/equipment components :

- transformers
- capacitors
- fluorescent light ballasts
- gaskets in potential PCB-containing systems (e.g., HVAC)
- electrical wiring
- paints

*7/17/97* Liquid media will be sampled if encountered during RLCP implementation by APO personnel using APO procedures then or at a later time. Additionally, suspected spill sites on nonporous media shall be sampled with swipes. The sample area shall consist of 100cm<sup>2</sup>, based on use of a template overlay used with the swipe (40 CFR 761.125). The samples will be analyzed offsite by method SW8081. Quality control requirements of fixed laboratory results are under the auspices of the RFETS APO.

### 3.3.3 Lead and Metals

*7/17/97* All materials, equipment, or media suspected of containing lead and/or other RCRA metals (e.g., construction materials) or having lead coating will be sampled. A minimum of one sample will be acquired per homogeneous material/media type per building. Analogous to asbestos sampling, areas less than six linear ft in their longest dimension need only one sample taken. Generic types of potential lead-containing materials include the following:

- paints, categorized by color, texture, and luster
- gloveboxes and associated shielding equipment
- piping
- plates/bars/brackets/shields
- lead fills in walls
- skirting
- additives (e.g., in plaster)

Samples shall be collected and submitted for analysis in bulk form (i.e., in a form and cumulative composition most representative of the anticipated form of waste stream). For example, samples for metals in paint on wall

constructed with cinder blocks shall contain both the surficial paint layer(s) and a portion of the associated cinder block wall. A minimum of 100 grams (g) of bulk sample is needed for performance of the TCLP procedure. Material will not be cored in excess of 2 inches into the material being sampled.

Based on a regulatory threshold of 5 ppm for leachate of lead-contaminated media, Methods SW1311 followed by SW6010A will be used for determining lead and metals concentration. Samples must be analyzed for all metals necessary to determine whether the material has hazardous waste characteristics (except for mercury, which has been eliminated based on process knowledge). The metals of concern, and associated regulatory thresholds for the leachate, are as follow:

METAL	Regulatory Level (mg/L, TCLP)
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Selenium	1.0
Silver	5.0

For fixed laboratory analysis, lead and metals concentrations will be determined by method SW6010A. Quality control requirements of fixed laboratory results are under the auspices of the RFETS APO.

Based on the sampling results and the bulk materials represented, the quantities and types (Appendix B) of lead- and metals-containing materials will be estimated for subsequent waste management purposes.

#### 3.3.4 Radionuclides

Existing data from previous radiological surveys is discussed in Section 3.6.

#### 3.4 Definition of Project Boundaries

The characterization boundaries are limited to the spatial confines of the Building 886 Cluster itself and materials, equipment, equipment components, and media that make-up or are within the buildings (interior and exterior). Environmental media, such as contaminated soils or groundwater, are not within the scope of this project.

## 4.0 SAMPLING AND ANALYSIS

The sampling and analysis methods for each type of sample event to be performed under this RLCP were selected to be consistent with the DQOs presented in Section 3.0. If conditions are encountered during characterization which make the use of a sampling technique unsafe or inappropriate for the task at hand, the specified procedures may be modified or replaced as long as the modification or replacement procedure is justified and detailed in the sampling records and the resulting data is comparable and adequate to meet the objectives of the project.

An overview of the sampling and analysis is presented in this section along with a discussion sample handling, equipment decontamination, personal protective equipment (PPE) evaluation, quality control sampling, and sample designation. Detailed sampling instructions and referenced procedures are included as appendices to this plan and are referenced in the following sections as appropriate.

### 4.1 Asbestos

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A complete asbestos inspection of the 886 Cluster will be completed in accordance with the Colorado Code of Regulations and Asbestos Hazard Emergency Response Act (40 CFR 763) by a state certified inspector. Sampling, as deemed appropriate by the inspector, will comply with Colorado Regulation 8 and 40 CFR 763 requirements. The sampling and analysis requirements are appended to the RLCP as Appendix A. Bulk samples may be acquired by either coring or hammer and chisel. For wall, floor, or roof samples, sampling the entire thickness of the material is not necessary; however, the samples must penetrate a minimum of 1 inch but not exceed 2 inches.

### 4.2 PCBs

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All areas of facilities or buildings do not have the same potential for PCB contamination. Specific building materials, equipment, equipment components, or media suspected of being a source of PCBs and/or PCB-contaminated will be identified as part of characterization. Identification includes classification of affected areas (i.e., areas that contain suspect building materials, equipment, equipment components, or media) and unaffected areas. Affected areas will be subsequently characterized using the instructions contained in Appendix B. Additionally, during the characterization activities, any areas, equipment, equipment components or media suspected of being a source of PCBs and /or PCB-contaminated which were not previously identified will be listed or characterized at that time. As summarized in Section 3.3.2, the following media shall be sampled for PCBs if encountered and if a sample can be obtained without dismantling the suspect equipment/equipment components :

- transformers
- capacitors
- fluorescent light ballasts
- gaskets in potential PCB-containing systems (e.g., HVAC)
- electrical wiring
- paints including painted surfaces

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Oils will be listed or sampled if encountered during RLCP implementation. Additionally, suspected spill sites on nonporous media shall be sampled with swipes. PCB concentrations will be determined by a fixed laboratory by method SW8081. The sampling and analysis requirements are appended to the RLCP as Appendix B. Additionally, paint chips analyzed for PCBs will be sampled as described in Appendix C, ASTM Method E 1729-95, Section 6.4.2 and analyzed by method SW8081 as stated in Appendix B.

#### 4.3 Lead and Metals

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All materials, equipment, or media suspected of containing lead and/or other RCRA metals (e.g., construction materials) or having coating (i.e., paint) suspected of containing lead and/or other RCRA metals will be sampled. As stated in Section 3.3.3, generic types of potential lead-/metal-containing materials include the following:

- paints, categorized by color, texture, and luster
- gloveboxes and associated shielding equipment
- piping
- plates/bars/brackets/shields
- lead fills in walls
- skirting
- additives (e.g., in plaster)

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Bulk samples will be collected by the coring technique described in American Society for Testing and Materials (ASTM) Method E 1729-95. Coring will not penetrate any surface greater than 2 inches. This technique is consistent with the DQOs as described in Section 3.3.3 to provide a sample in a form and cumulative composition most representative of the anticipated form of waste stream. A minimum of 100 grams of bulk sample is required. The lead and metals samples will be analyzed by method SW6010A. The sampling and analysis requirements are appended to the RLCP as Appendix C. Additionally, paint chips analyzed for lead and metals will be sampled as described in Appendix C, ASTM Method E 1729-95, Section 6.4.2 and analyzed by method SW6010A.

#### 4.4 Radiological

Existing data from radiological surveys is discussed in Section 3.6.

#### 4.5 Sample Handling and Equipment Decontamination Procedures

Samples collected for laboratory analysis will follow *Environmental Management Department (EMD) Operating Procedures Volume I, Field Operations 5-21000-OPS-FO.13, Containerization, Preserving, Handling, and Shipping of Soil and Water Samples* (Appendix D). When reusable sampling equipment is used, the equipment will be decontaminated in accordance with EMD Operating Procedure 5-21000-OPS-FO.03, *General Equipment Decontamination, Section 5.3, Cleaning Procedures for Stainless Steel or Metal Sampling Equipment* (Appendix E).

#### 4.6 Documentation

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Data shall be documented on the forms developed for this project, and in accordance with the *Environmental Management Department (EMD) Operating Procedures Volume I, Field Operations 5-21000-OPS-FO.13, Containerization, Preserving, Handling, and Shipping of Soil and Water Samples* (Appendix D). The originator will authenticate (legibly sign and date) each completed hardcopy of the data. A peer reviewer, someone other than the originator, will perform a peer review on each hardcopy of data. The peer reviewer will authenticate

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water samples identified in Appendix D and submitted with the regular samples. Because potential for cross-contamination between asbestos samples is negligible, equipment rinsates will not be collected for asbestos samples.

#### 4.9 Sample Designation

Each sample will be assigned a unique identification number at the time of sample collection. The sample identification number will be documented on the records included in Appendices A, B, and C.

#### 5.0 QUALITY ASSURANCE

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Analytical data collected in support of the 886 Cluster RLCP will be evaluated using the guidance established by the Rocky Flats Administrative Procedure 2-G32-ER-ADM-08.02, *Evaluation of ERM Data for Usability in Final Reports*. This procedure establishes the guidelines for evaluating analytical data with respect to precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters. Data validation will be performed according to the RFETS APO, Analytical Services Performance Assurance Group procedures, but will be done after the data is used for its intended purpose. Analytical laboratories supporting this task have all passed regular laboratory audits by the APO.

#### 5.1 Quality Assurance Program

The RMRS Quality Assurance Program describes how RMRS implements the requirements of 10 CFR 830.120 through the RFETS site QA Program. The 886 Cluster organizational responsibilities are identified in Section 6.0.

#### 5.2 Training Requirements

Training requirements for the 886 Cluster Decommissioning are defined in the Building 886 Training Implementation Matrix. Additional training identified during the reconnaissance level characterization will be documented through 1-31000-COOP-01 required reading Conduct of Operations and 1-31000-COOP 011, Pre-evolution Briefing.

#### 5.3 Corrective Action

The site Corrective Action Process (CAP) and the RMRS QA-3.1, Corrective Action procedure and the occurrence reporting systems are utilized to handle items, services and processes not conforming to established requirements.

#### 5.4 Document Control

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All documents are prepared, reviewed and approved in accordance with RMRS DC-06.01, Document Control Program. Since this activity is considered a CERCLA removal action, all AR records generated shall be identified, handled and submitted in accordance with the RMRS Administrative Record Document Identification and Transmittal (RM 06.04) procedure. All non AR records shall be handled in accordance with the RMRS Records Identification, Generation and Transmittal, RM-06.02. procedure. All activities described in the RLCP for the 886 Cluster Decommissioning Project are conducted in accordance with approved and controlled instructions and procedures identified in appendices A-G of the RLCP.